


Canaan Conservation Area

Ten-Year Area Plan
FY 2015-2024




Wildlife Division Chief


Date

Canaan Conservation Area Management Plan Approval Page

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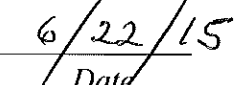
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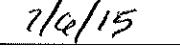

Signature


Date

WILDLIFE DIVISION

Unit Chief


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Date

OVERVIEW

- **Official Area Name:** Canaan Conservation Area, #8106
- **Year of Initial Acquisition:** 1981
- **Acreage:** 1,435 acres
- **County:** Gasconade
- **Division with Administrative Responsibility:** Wildlife
- **Division with Maintenance Responsibility:** Forestry
- **Statements of Purpose:**

A. Strategic Direction

The primary purpose of Canaan Conservation Area (CA) is to provide recreational opportunities to the public, including bird watching, hiking, hunting, horseback riding, outdoor photography, wildlife viewing and camping. The Area is managed for the restoration and maintenance of natural communities (forests, woodlands, glade and fen); habitat for healthy wildlife populations; and diverse public recreational opportunities. Public use is to be inviting and encouraged, particularly on the existing multi-use trail system.

B. Desired Future Condition

The desired future condition of Canaan CA is a woodland/forest complex with an interspersed of early and mid-successional old fields, grasslands, scattered cropfield/foodplots, shrubby edges, fens and glades. Focus should be made on the restoration and maintenance of natural communities, particularly in the woodlands, glades and fens.

C. Federal Aid Statement

N/A

GENERAL INFORMATION AND CONDITIONS

I. Special Consideration

A. **Priority Areas:** None

B. **Natural Areas:** None

II. Important Natural Features and Resources

A. **Species of Conservation Concern:** Species of conservation concern are not known from this site, but are found in the surrounding area. Area Managers should consult annually with the Natural History Biologist.

B. **Caves:** None

C. **Springs:** Yes, records kept with the Missouri Department of Conservation (the Department) Natural History Biologist.

D. Other:

- **Woodlands:** The area is comprised mostly of woodlands of varying quality. Some of the woodlands have been actively managed with thinning and burning; while others are still overstocked and encroached by cedar and maple. Woodlands were historically maintained by fire (Nelson, 2010) and all of the woodlands on Canaan CA need periodic disturbance to enhance and maintain their quality.
- **Fens:** There is also an Ozark Fen (Nelson, 2010) located on Canaan CA. Ozark Fens are classified as Imperiled in Missouri (Missouri Department of Conservation, 2013). Threats to them include fire suppression; rutting caused by vehicle trespass and woody vegetation; and exotic species, including feral hogs (Nelson, 2010).
- **Ecological Subsection:** Canaan CA is located within the Gasconade River Hills Subsection of the Ozark Highlands Ecological Section (Nigh & Schroeder, 2002). This subsection is a highly dissected landscape along the Gasconade River and was historically a mixture of savannas, woodlands and forests. Glades are scattered throughout the subsection and the riparian bottomlands were comprised mostly of riverfront and mixed-hardwood bottomland forests. Today, the oak forests remain, however, the woodland/glade complexes are degraded due to past grazing activity, fire suppression and repeated harvesting pressure. All of the savanna communities have been converted to pasturelands and a large portion of the bottomland forests have been cleared and converted to pasture and some cropland.

III. Existing Infrastructure

- 6 parking lots
- 2 seasonal camping areas next to parking lots (no amenities)
- 12 fishless ponds (6 acres)
- 12 miles of multi-use trail (hike/bike/horse)

IV. Area Restrictions or Limitations

- A. Deed Restrictions or Ownership Considerations:** None
- B. Federal Interest:** Federal funds may be used in the management of this land. Fish and wildlife agencies may not allow recreational activities and related facilities that would interfere with the purpose for which the State is managing the land. Other uses may be acceptable and must be assessed in each specific situation.
- C. Easements:** None
- D. Cultural Resources Findings:** Cultural resources are present; records are kept with the Department Environmental Compliance Specialist. The Old Methodist

Cemetery is located in the southwestern portion of the area. Managers should follow Best Management Practices for Cultural Resources found in the Department Resource Policy Manual.

E. Hazards and Hazardous Materials: None observed.

F. Endangered Species: None observed.

G. Boundary Issues: Establishing accurate and identifiable boundary markers is a priority for this property.

MANAGEMENT CONSIDERATIONS

V. Terrestrial Resource Management Considerations

Challenges and Opportunities:

- 1) Monitoring and managing of the Area's natural features (Ozark fen, springs, glade and woodland complexes, forests, riparian corridors and native grasslands).
- 2) Supporting healthy wildlife populations to provide public outdoor recreational opportunities.
- 3) Suppressing invasive species and woody vegetation succession that threaten the open land habitat conditions.

Management Objective 1: Restore and maintain existing natural features (Ozark fen, springs, glade and woodland complexes, forests and riparian corridors).

Strategy 1: Conduct forest inventory by compartment with an estimated re-entry time of 15 years, or as needed.

Strategy 2: Use existing and future forest inventory information to identify management units, where prescribed fire can be used to control woody vegetation development, and encourage the expression of native herbaceous vegetation.

Strategy 3: Use existing and future forest inventory prescriptions to identify overstocked woodlands and forests. Conduct mechanical and chemical treatments on these woodlands and forests, using Department staff, contractors and commercial harvests, where appropriate. Maintain a goal of conducting woodland/forest management on 25 to 30 percent of the identified acres between each forest inventory.

Management Objective 2: Manage open lands to provide quality upland wildlife habitat, while maintaining them in desired successional state.

Strategy 1: Use haying, mowing, prescribed fire, disking, planting and herbicide applications to enhance or convert to diverse native plant species, ensuring quality grassland structure for all wildlife.

Strategy 2: Use disturbance factors (prescribed fire, soil disturbance, herbicide applications and mechanical woody vegetation control) to maintain desired early successional state.

Strategy 3: Maintain food plots to provide public use hunting/viewing opportunities.

Management Objective 3: Reduce/eliminate invasive species.

Strategy 1: Prioritize, monitor and plan for control of invasive species.

Strategy 2: Implement invasive species control with priority given to areas delineated during monitoring.

VI. Aquatic Resource Management Considerations

Challenges and Opportunities:

- 1) Minimizing sediment and gravel deposition in Clear Fork and Sulphur Branch.
- 2) Maintaining and enhancing the quality of the Ozark fen and springs that occur on the area.
- 3) Maintaining wildlife watering ponds.

Management Objective 1: Minimize sediment and gravel deposition in Clear Fork and Sulphur Branch.

Strategy 1: Restore/maintain minimum 100-foot riparian corridors using tree plantings or natural regeneration. Restoration practices may include protection from fire (wildfire and prescribed).

Strategy 2: Utilize best management practices, including adequate riparian buffers, to reduce soil erosion and increase water quality, whenever silvicultural techniques are used in the woodlands or forests.

Management Objective 2: Maintain and enhance the quality of the Ozark fen and springs that occur on the area.

Strategy 1: Restore and maintain a natural vegetation buffer of at least 100 feet around all springs and fens.

Strategy 2: Restrict vehicle, horseback and foot traffic in the Ozark fen and spring locations, to avoid damage to the soil and hydrology.

Strategy 3: Monitor for invasive species and implement control methods as needed.

Management Objective 3: Maintain wildlife watering ponds.

Strategy 1: Monitor for invasive species and implement control methods as needed.

Strategy 2: Provide maintenance to existing trails that access wildlife watering ponds to allow public access for the purpose of viewing wildlife, especially amphibians and reptiles.

VII. Public Use Management Considerations

Challenges and Opportunities:

- 1) Maintaining the area's multi-use trails that provide area visitors multiple methods of access to the majority of the area.
- 2) Providing area users with varied recreational opportunities (e.g., hunting, hiking, horseback riding, camping and nature viewing).

Management Objective 1: Maintain multi-use trails for recreation and access to area users.

Strategy 1: Maintain existing trail and trailhead signage and conduct maintenance and erosion control on trails and access roads.

Strategy 2: Monitor the condition of the trail and remove any snags on or adjacent to the trail area to provide a safe and aesthetically pleasing experience for area users. Coordinate with other Department Divisions (e.g., Design and Development) to solve large-scale maintenance issues with the trail.

Strategy 3: Monitor trail use and document reported conflicts or concerns with other area uses.

Strategy 4: Monitor the creation of unauthorized trails and eliminate them as needed.

Management Objective 2: Provide area users compatible and inviting multiple-use opportunities for recreation.

Strategy 1: Maintain accurate area information and regulations through the Atlas database, area brochures, posted information and staff contacts with area users.

Strategy 2: Promote compatible and safe recreational opportunities (e.g., hunting, birding, hiking, horseback riding, camping and nature photography).

Strategy 3: Monitor and manage potential multiple-use conflicts through special use permits and coordination of seasonal uses.

VIII. Administrative Considerations

Challenges and Opportunities:

- 1) Maintaining cooperation and good relations with neighboring landowners.
- 2) Enforcing area and statewide regulations to ensure protection for area users and resources.

APPENDICES

Area Background:

Canaan Conservation Area is located in Gasconade County, near Bland. The Department purchased the property in 1980. Canaan Conservation Area contains 1,435 acres, 86 percent of which are forested or woodland and glade. The area includes 1.4 miles of Clear Fork Creek, 1.2 miles of Sulphur Branch Creek, several small springs and a deep muck fen. The area also features a scenic north-facing slope adjacent to Sulphur Branch and a glade/woodland complex.

The conservation area is composed of two former working farms. The Department continues to crop a portion of the area. The Department also maintains the warm-season grasses, the deep muck fen, and the woodland/glade complex.

In 2008 the Department opened a multi-use trail that is open to hikers, bicycles and horseback riding. This trail is approximately 10.4 miles long with three complete loops. Signs of natural community restoration work can be seen where cedar and hardwood trees have been cut to enhance the structure of the Area's woodlands.

Current Land and Water Types:

Land/Water Type	Acres	Miles	% of Area
Woodland	994		65
Upland Forest	88		15
Bottomland/Riparian Forest	140		7
Old Fields/Upland Fields	120		5
Warm-Season Grass Fields	42		4
Cropland/Hay Land	33		2
Savanna	11		1
Glade	6		<1
Impounded Water	1		<1
Total	1,435		100
Stream Frontage		3	

Public Input Summary:

The draft Canaan Conservation Area Management Plan was available for a public comment period March 1–31, 2015. The Missouri Department of Conservation received comments from nine respondents (Appendix A). The Canaan Conservation Area Planning Team carefully reviewed and considered these ideas as they finalized this document. A brief summary of public input themes, including how they were incorporated or why they were not, can be found below.

Rather than respond to each individual comment, comments are grouped into general themes and are addressed collectively.

Department responses to themes and issues identified through Canaan Conservation Area public comment period

Terrestrial Resource Management

Suggests leaving brush piles for quail after clearing woody vegetation.

The Planning Team appreciates the concern for quail and other small game habitat on Canaan CA. During some recent extensive oldfield renovations, large amounts of small diameter woody vegetation were mechanically removed. Management of these areas will be directed at maintaining an openland state in the future through mowing and prescribed burning. The encouragement of living shrubby cover to provide upland wildlife habitat is a more long-term, sustainable management practice. When feasible with other management considerations, brushpiles will be maintained.

Would like to see biological surveys of the area (i.e., have access to a list of plants and animals).

Only limited biological survey data for Canaan CA is present at this time. Most of this available data includes Breeding Bird Survey (BBS) data and other trip species lists. These surveys are opportunistic, but this information is available by request. The types of surveys in question are usually limited to areas containing communities or species with more ecological significance and typically contain a Missouri Natural Area. If additional resources or research questions should arise, more detailed surveys of Canaan will be considered. Areas such as Canaan with more general habitat and community features are not inventoried to that extent simply due to a lack of time and staff to collect the data. One data source for bird species is housed with a partnership with the MO Audubon Society through CACHE and eBird (<http://mobirds.org/CACHE/AreaChecklist.aspx?site=386>)

Opposes timber harvests on the area. Concern that oaks would be removed and only maples would regenerate.

The Planning Team notes that timber harvest can be used as a tool to manage forests and woodlands. Mesophication, or the replacement of oak and hickory with more shade tolerant/mesic species, such as sugar maple, is a management issue all over the Missouri Ozarks - including Canaan CA. This retention of the oak and hickory species dominance is a major objective of our forest and woodland management. In 2013, 65 acres of Canaan CA was treated for sugar maple and ironwood removal. Any future timber harvests on Canaan CA will be geared toward staggering forest openings, allowing the forest/woodland to perpetuate over time. These forest openings would vary in size relative to a forest or woodland landtype, but in both instances

would provide excellent wildlife habitat. We share your concerns over monitoring all management for proper natural community response.

Values the fen at the area.

The Ozark fen is a unique feature on Canaan CA, and will be managed to maximize its plant and animal diversity. We share your value for these features on the landscape.

Aquatic Resource Management

Suggests stocking fish in fishless ponds.

The Planning Team understands the lack of fishing opportunity on the area. All of the fishless ponds on Canaan CA were built as amphibian breeding sites and also wildlife watering holes. These ponds are too shallow to support year-round fish survival. There are many species of amphibians that depend on ponded water with no fish present to complete their breeding cycle.

Recommends maintaining 200 ft. corridors around streams and fens.

The Planning Team agrees with the maintenance of riparian corridors on Canaan CA. Where feasible, we will look to maintain buffers of at least 200ft. However, in some areas this may not be feasible and buffers of at least 100ft. will be maintained. Many young tree plantings can be seen throughout the area in efforts to reforest this riparian zone. Ozark fens do require periodic disturbance (most notably fire) to express their full diversity of plant species. This disturbance increases the available sunlight to plants and does not deteriorate the fen in any way.

Public Use Management

Trails

Opposes bicycle use on the area.

Due to the lack of public lands with trail systems in the vicinity of Canaan CA, the Planning Team supports maintaining the current trail system as a multi-use system that provides diverse opportunities.

Supports allowing horseback riding on the multi-use trails.

There are no current plans to limit horseback riding on any of the multi-use trail system at Canaan CA. The team appreciates your vested interest in the trail system.

Would like horseback riding to be limited to fewer trails.

With current regulations disallowing horseback riding during firearms deer and turkey seasons, conflicts between horseback riders and other area users should be kept to a minimum. Neither the area manager nor the county conservation agent has noted any such major conflicts between area

users. The original 10.4 mile system was built and designed as multi-use, which includes equestrians.

Suggests expanding trails.

Expanding the current trail system to more than the current 10.4 miles would significantly increase maintenance time. Much of the area is currently in proximity to one of the three trail loops. With the limitations of only 1435 acres, the Planning Team feels the current trail system is appropriate.

Suggests rerouting the trails to bypass gravel roads and include more scenic areas.

With the demands put on a multi-use trail system by bicycles and equestrians, extra stream crossings and steep terrain are limitations put on a trail system. By utilizing current area access roads, damage to the area from the trail system is kept to a minimum. For hiking on foot exclusively, the Planning Team encourages walking off the trail and using natural features or created firebreaks to access more scenic portions of the area.

Suggests rerouting trails away from erosion-prone (steep-gradient) areas.

In order to install a 10.4 mile trail system on rugged topography such as Canaan CA, traversing steep terrain is necessary for access to interior portions of the area. On these steep-gradient areas, you may notice practices such as adding rock or building waterbars to lessen the impact of erosion. These features need to be maintained and, over time, may no longer perform as originally designed. Trail maintenance is ongoing and repair of non-functioning erosion control features will be performed as soon as possible.

Suggests providing better trail access at areas that are periodically flooded/wet and become difficult to cross (e.g., for children).

The Planning Team would like to commend you for getting kids hiking and into the outdoors. Unfortunately, to access interior portions of Canaan CA, you must cross either Sulphur Branch or Clear Fork creeks. These streams are flashy and may be difficult to cross during periods of high flow. For hiking on foot only, consider other nearby areas that may boast foot trail systems without these types of stream crossings.

Suggests improvements in marking trails.

Trail markers are designed to be inconspicuous and provide direction where needed, without littering the area with large signs. This may mean during “leaf on” the trail markers become hard to see. Maintenance of these markers is ongoing.

Camping

Suggests providing informational signage to deter campers from leaving waste.

Littering anywhere on a Conservation Area is against the law. Maintenance staff monitor areas with consistently large amounts of litter and post reminders where necessary. Enforcement of these regulations is also ongoing. The Planning Team shares your desire for Canaan CA to be kept clean and free of litter.

Other

Opposes allowing dogs on the area.

Current regulations allow for pets on the area as long as they remain on a leash. This minimizes conflicts with other area users. Dogs used for hunting are allowed off leash during prescribed hunting seasons and during other times of the year for training purposes. Hunting small game with dogs is an important part of Missouri's hunting heritage and is a use that the Planning Team encourages on conservation areas where feasible.

Volunteers to help with habitat management (clearing brush) and trail maintenance.

The Planning Team appreciates your vested interest in Canaan CA. The Department has policies in place for volunteer work on conservation areas. Contact the Area Manager for more details.

Administrative Considerations

Supports acquiring more land, as opportunities arise.

When available, adjacent land may be considered for acquisition from willing sellers. Tracts that improve area access, provide public use opportunities, contain unique natural communities and/or species of conservation concern, or meet other Department priorities, as identified in the annual Department land acquisition priorities, may be considered.

References:

Missouri Department of Conservation. (n.d.). *Natural heritage database*. Jefferson City, Missouri: Missouri Department of Conservation.

Nelson, P. W. (2010). *The terrestrial natural communities of Missouri*. Jefferson City, Missouri: Missouri Natural Areas Committee.

Nigh, T. A., & Schroeder, W. A. (2002). *Atlas of Missouri ecoregions*. Jefferson City: Missouri Department of Conservation.

Maps:

Figure 1: Area Map

Figure 2: Existing Cover Types

Figure 3: Modeled Ecological Site Classes

Figure 4: Area Trails and Facilities

Additional Appendices:

Appendix A: Draft Canaan Conservation Area Management Plan Public Comments

Figure 1: Area Map

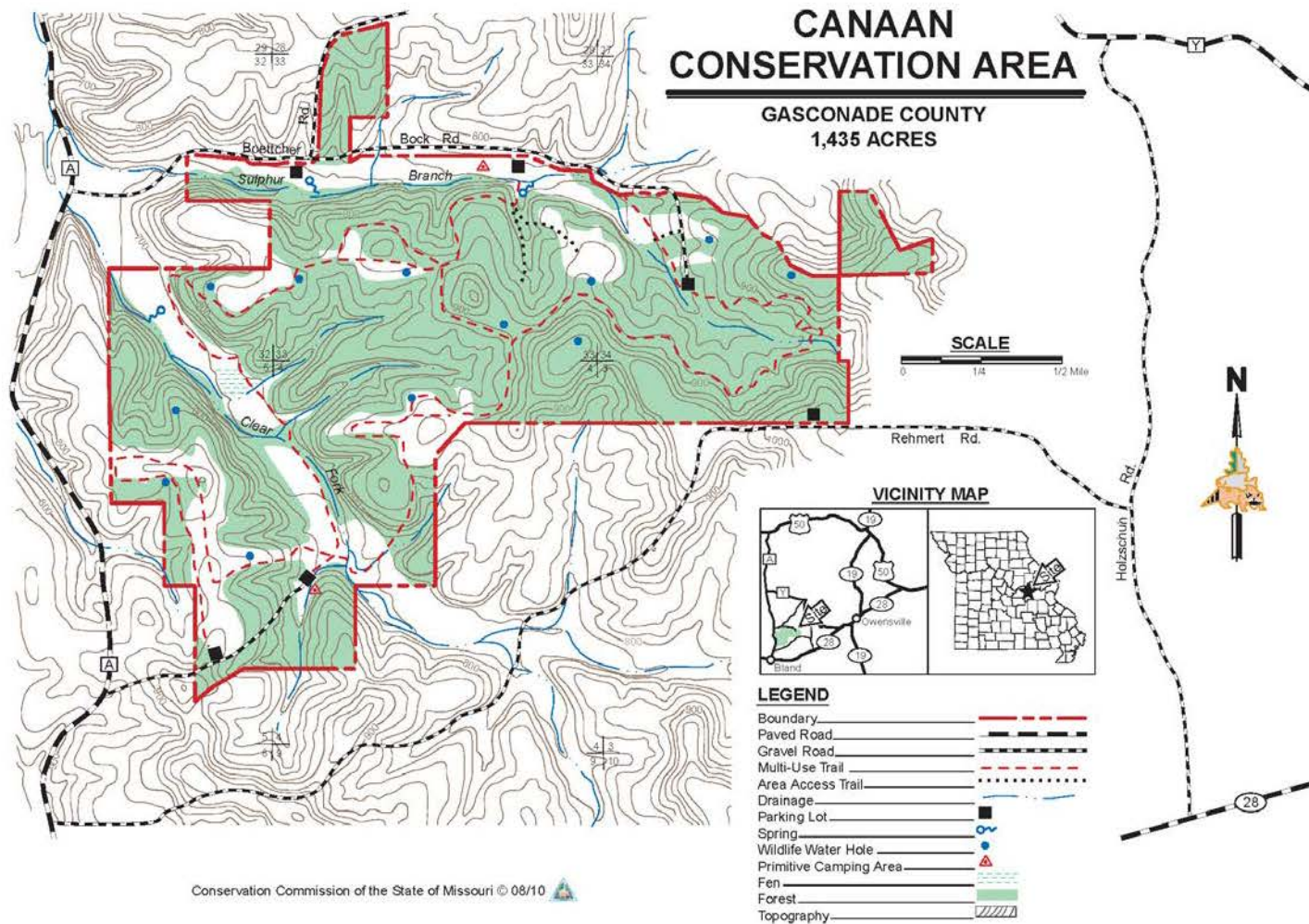


Figure 2: Existing Cover Types

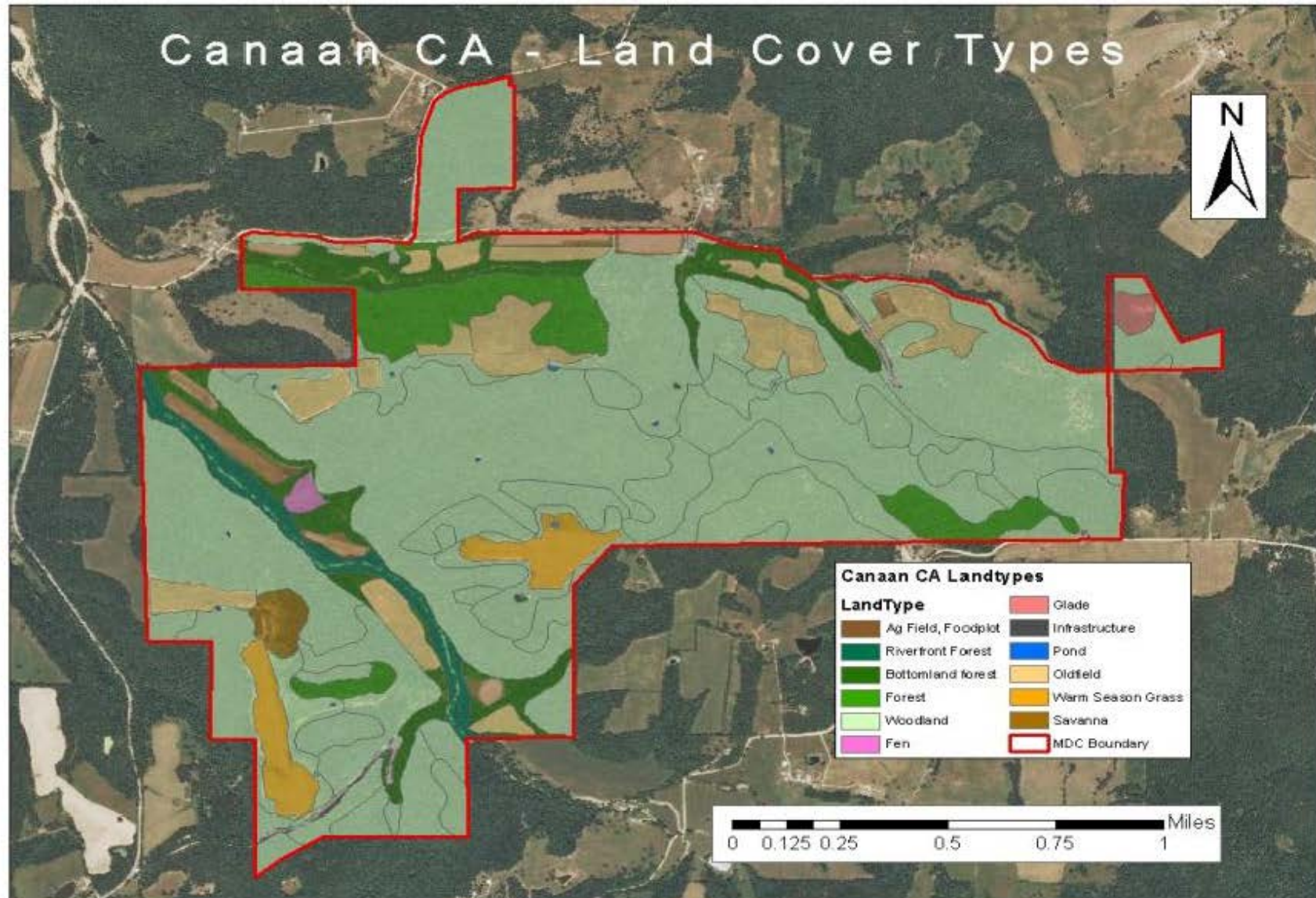


Figure 3: Modeled Ecological Site Classes

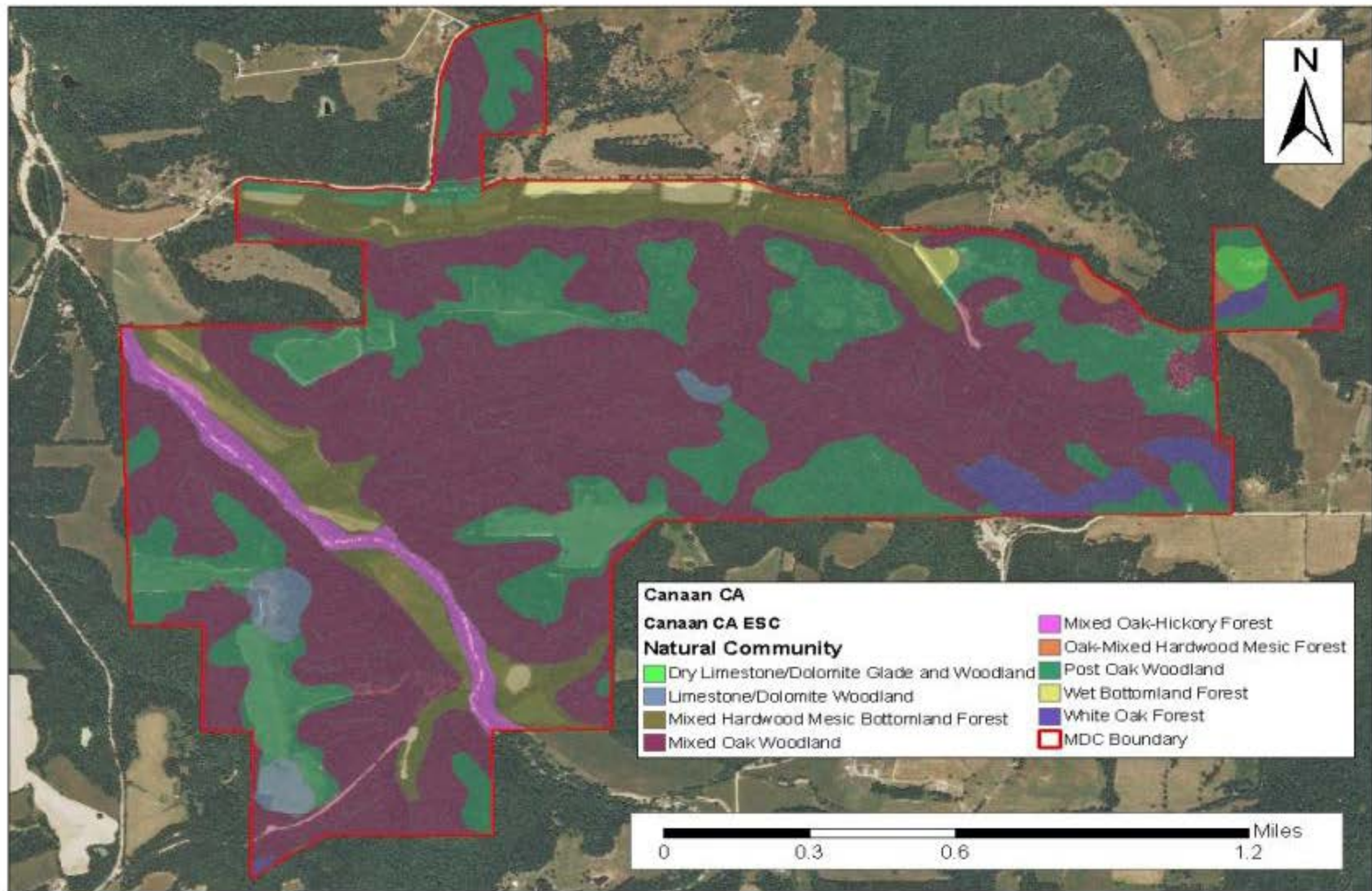
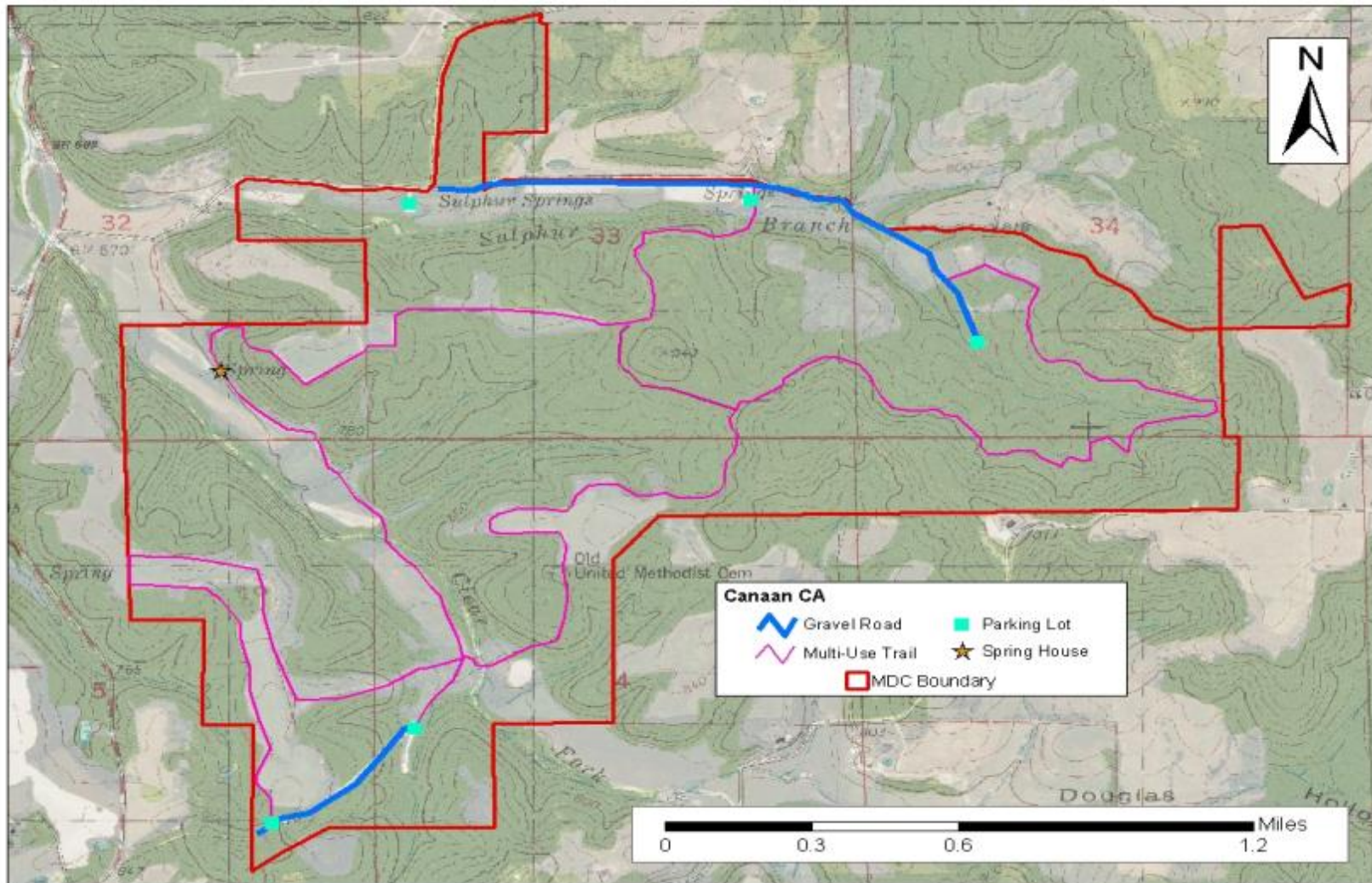


Figure 4: Area Trails and Facilities



Appendix A: Draft Canaan Conservation Area Management Plan Public Comments

Received during public comment period (March 1-31, 2015)

Bicycles should not be allowed in any natural area. They are inanimate objects and have no rights. There is also no right to mountain bike. That was settled in federal court in 1996: <http://mjvande.nfshost.com/mtb10.htm> . It's dishonest of mountain bikers to say that they don't have access to trails closed to bikes. They have EXACTLY the same access as everyone else -- ON FOOT! Why isn't that good enough for mountain bikers? They are all capable of walking....

A favorite myth of mountain bikers is that mountain biking is no more harmful to wildlife, people, and the environment than hiking, and that science supports that view. Of course, it's not true. To settle the matter once and for all, I read all of the research they cited, and wrote a review of the research on mountain biking impacts (see <http://mjvande.nfshost.com/scb7.htm>). I found that of the seven studies they cited, (1) all were written by mountain bikers, and (2) in every case, the authors misinterpreted their own data, in order to come to the conclusion that they favored. They also studiously avoided mentioning another scientific study (Wisdom et al) which did not favor mountain biking, and came to the opposite conclusions.

Those were all experimental studies. Two other studies (by White et al and by Jeff Marion) used a survey design, which is inherently incapable of answering that question (comparing hiking with mountain biking). I only mention them because mountain bikers often cite them, but scientifically, they are worthless.

Mountain biking accelerates erosion, creates V-shaped ruts, kills small animals and plants on and next to the trail, drives wildlife and other trail users out of the area, and, worst of all, teaches kids that the rough treatment of nature is okay (it's NOT!). What's good about THAT?

To see exactly what harm mountain biking does to the land, watch this 5-minute video: <http://vimeo.com/48784297>.

In addition to all of this, it is extremely dangerous: http://mjvande.nfshost.com/mtb_dangerous.htm .

For more information: <http://mjvande.nfshost.com/mtbfaq.htm> .

The common thread among those who want more recreation in our parks is total ignorance about and disinterest in the wildlife whose homes these parks are. Yes, if humans are the only beings that matter, it is simply a conflict among humans (but even then, allowing bikes on trails harms the MAJORITY of park users -- hikers and equestrians -- who can no longer safely and peacefully enjoy their parks).

The parks aren't gymnasiums or racetracks or even human playgrounds. They are WILDLIFE HABITAT, which is precisely why they are attractive to humans. Activities such as mountain biking, that destroy habitat, violate the charter of the parks.

Even kayaking and rafting, which give humans access to the entirety of a water body, prevent the wildlife that live there from making full use of their habitat, and should not be allowed. Of course those who think that only humans matter won't understand what I am talking about -- an indication of the sad state of our culture and educational system.

I am pleased to see the plan to continue to allow horseback riding on the multiuse trails. So many areas are pushing horses out, leaving equestrians with fewer opportunities. Although I also hike, thereby having continued access to those areas, my husband is partially disabled and cannot do so. He relies on his horse to take him places he would never see otherwise. Horseback riding gives him an opportunity to enjoy Missouri's wonderful outdoors.

Can the 12 ponds on this area be stocked? I would like to stock and manage the fish taken. No point of having ponds, if not stocked for kids to fish. Also if some clearing needs to be done, I think the brush piles should be left for quail habitat cover. If help is needed, I would like to be apart of this. Thanks

In all cases buy more land when the opportunity is there. Maintain the trail and if possible add to it. The fen is very important. Consider limiting horseback usage to only parts of thee trail.

As a volunteer hiking leader I would like to see the gravel roads eliminated from the hiking loops by the following suggestions. (1) From the camping area parking lot on Bock Road after crossing the branch to the east there is an access trail to the top of the ridge if this were connected to the trail which crosses the east parking lot road this would complete a loop which would eliminate using the gravel roads. Hiking on a gravel road doesn't give you a feeling of nature at it's best. (2)The Southwest loop could be improved by crossing the gravel road at the SW parking lot and developing a trail in the timber end at the south camping area. If possible instead of hiking the edge of the fields and utilizing more of the wooded area would help.

Trail marking for the trail in section 34 does not show the northerly direction and back westerly crossing the parking lot road. My memory seems to recall a cable across this entrance. Users are exiting at south end of the parking lot.

I would like to see hiking trails improved for wet weather access. Some of the multiuse trails cross streams and it is sometimes difficult for families with young hikers to cross these when water flow and/or levels are up. This is particularly on the trail to the spring house. Otherwise the area is very enjoyable for my family.

Please plan ahead and deny access for dogs and mountain bikes as both are destructive to natural areas and detrimental to enjoyment of those areas by others.

1. I would like to see a biological survey of the flora and fauna in the Canaan Conservation area. If a survey has not been done recently, it should be done. I thought I saw a plant list that listed some rare ironweed and some a rare native bromus on this site.

2. I don't belive that timber harvest should be conducted on this site. There is a rarity of old

growth forest and dead snags in this area. Timber harvesters tear up the land and bring in exotics. In a clear cut timber harvest situation in the 1990's at Painted Rock that cut all the oaks nothing but maples came back.

3. There should be some informational signs about primitive camping. I noticed several human fecal piles and scattered toilet paper on the surface. Campers should know to bury their waste.

4. I believe that a 200 foot corridor should be maintained around streams and fens. not 100 feet.

First, thank you for the opportunity to comment on the Caanan CA Management Plan. MDC is to be commended for making the enjoyment of Caanan CA available to many citizens through the multiuse trail network. Show-Me Missouri Back Country Horsemen recommends that these trails continue to be made available to all users. The extent of the trail system is appropriate to provide optimum opportunities to equestrian users in the community. The trails, to a large extent, are properly situated on the landscape and show minimal erosion or resource damage; the exceptions are a number of locations where the trail grade is excessive and long (where the trails runs up and down big hills) with excessive erosion as a result. SMMBCH recommends that these trail segments be rerouted to minimize trail gradient and length. It is also noted that the trails could be better marked. SMMBCH offers our services (availability of volunteers permitting) to help with rerouting and marking the trails.

Thank you again for maintaining a great trail network on a beautiful area, and thank you again for the chance to comment.